DETAILED ACTION

Status of Claims

Claims 1-8, 11-15, and 18 have been cancelled and claims 9-10, 16-17, and 19-21 are currently pending.

Election/Restrictions

Applicants' election of Group III drawn to a method of using the compound, in the reply filed on 11/4/2008 is acknowledged. The election was made with traverse. The traversal is on the ground that WO00/26629, which was used as a basis to conclude that the unity of Groups I-III is broken, does not teaches any stereoisomers of the compound as claimed, but the racemic mixture and does not disclose any specific methods of synthesis or any techniques for chiral separation. This is not found to be persuasive because of the following reasons: WO00/26629 teaches (±) trans-2-[-4(1-hydroxyhexyl) phenyl]-5-oxoeyclopentaneheptanoic acid in the raceme mixture as stated in the applicant's argument, however this racemic mixture inherently contains its corresponding stereoisomers as claimed in the instant application. Thus, the compound including its stereoisomers, which is the common technical feature for the claimed inventions, is still known in the prior art. Therefore, groups I, II, and III are not related to a single general inventive concept under PCT Rule 13.1 due to their lack of the same or corresponding special technical features under PCT Rule 13.2 as stated in the previous action mailed on 8/11/2008. In addition, since the common technical feature does not give any contribution over prior art, it is not an issue whether or not the prior art teaches any specific methods of synthesis or any

techniques for chiral separation for breaking the unity of invention. The requirement is still deemed proper and is therefore made final.

During a telephone conversation with Ms. Cynthia M. Bott on 11/10/2008, a provisional species election was made to prosecute the following species: inflammatory lung disease as a single disclosed species of conditions which can be alleviated by an EP_2 receptor agonist. Affirmation of this election must be made by applicant in replying to this Office action.

Claims 10 and 16 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a non-elected species.

Claims 9, 17 and 19-21 are under examination in the instant office action.

Priority

The instant application is a 371 of PCT/GB2004/005421 filed 22 December 2004, which claims priority to GB 0329620.9 filed on 12/22/2003, U.S. Provisional Application No. 60/531,979 filed on 12/24/2003, and U.S. Provisional Application No. 60/622,012 filed on 10/27/2004. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d) and for domestic priority under U.S.C. 119(e). A certified copy of foreign application has been submitted on 06/22/2006.

The earliest effective U.S. filing date afforded the instantly claimed invention has been determined to be 12/22/2003.

Information Disclosure Statement

The information disclosure statements have been filed on 6/22/2006, 11/3/2008, and 11/11/2008. Since the IDS filed on 1/24/2007 includes all the references cited in the previous IDS filed on 11/17/2005, the IDS filed on 11/17/2005 has not been considered.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 9, 17, and 19-21 are rejected under 35 U.S.C. 102(b) as being anticipated by Nials *et al.* (Cardiovascular Drug Reviews, 11(2): 165-179, 1993). Nials *et al.* was supplied by Applicants in the IDS filed on 6/22/2006.

The instant invention is drawn to a method of treating a condition which can be alleviated by an EP_2 receptor agonist (elected species: inflammatory lung disease), comprising administering (1R,2S)-2-[4-(1-(R)- hydroxyhexyl)phenyl]-5-oxo-cyclopentaneheptanoic acid (RSS) or (1R,2S)-2-[4-(1-(S)-hydroxyhexyl)phenyl]-5-oxo-cyclopentaneheptanoic acid (RSR).

Nials *et al.* teach AH13205 (trans-2-[4-(1-hydroxyhexyl)phenyl]-5-oxocylco pentaneheptanoic acid) and show its relaxant activity on guinea pig isolated trachea and other EP_2 receptor-containing preparations via prostanoid EP_2 receptor (p166, 4th paragraph, figure 1, and table 1). The reference further teaches that AH13205 has smooth muscle relaxant properties

and some anti-inflammatory activity and inhibit the release of inflammatory mediators from human lung fragments and human neutrophils (p176, 2nd paragraph). In addition, Nials *et al.* teach that a PGE_2-related compound (EP_2 receptor agonist) such as AH13205, which possesses both bronchodilatory and anti-inflammatory properties, may provide a novel and beneficial approach to the treatment of bronchial asthma, which is an inflammatory lung disease.

The reference is silent about individual stereoisomers of AH13205 as claimed in the instant application, however AH13205 in a racemic mixture inherently contains both stereoisomers, (1R,2S)-2-[4-(1-(R)- hydroxyhexyl)phenyl]-5-oxo-cyclopentaneheptanoic acid and (1R,2S)-2-[4-(1-(S)-hydroxyhexyl)phenyl]-5-oxo-cyclopentaneheptanoic acid. Therefore, Nials *et al.* is considered to anticipate the claimed invention in the absence of any indication in the instants claims that each stereoisomer must be essentially exist in a purified or isolated form without any contamination of the other isomer.

In the alternative, the following 103 rejection over Nials *et al.* is applied if said steroisomer, (1R,2S)-2-[4-(1-(R)- hydroxyhexyl)phenyl]-5-oxo-cyclopentaneheptanoic acid or (1R,2S)-2-[4-(1-(S)-hydroxyhexyl)phenyl]-5-oxo-cyclopentaneheptanoic acid, is in a purified or isolated form without any contamination of the other isomer.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 9, 17, and 19-21 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Nials *et al.* (Cardiovascular Drug Reviews, 11(2): 165-179, 1993).

As stated above in 102 rejection, Nials *et al.* teach AH13205 (trans-2-[4-(1-hydroxyhexyl)phenyl]-5-oxocylco pentaneheptanoic acid) in a recemic mixture can be used for the treatment of inflammatory lung disease such as asthma as EP_2 receptor agonist.

The reference differs from the instant claims insofar as it does not specifically teach individual stereoisomers of AH13205 as claimed in the instant application.

It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to use a certain stereoisomer of AH13205 for the treatment of inflammatory lung disease such asthma as taught by Nials *et al.* with reasonable expectation of success because of the following reasons: AH13205, which is taught to be effective for treating inflammatory lung disease such asthma by the prior art, inherently contains its corresponding stereoisomers such as (1R,2S)-2-[4-(1-(R)- hydroxyhexyl)phenyl]-5-oxo-cyclopentaneheptanoic acid and (1R,2S)-2-[4-(1-(S)-hydroxyhexyl)phenyl]-5-oxo-cyclopentaneheptanoic acid, thus the effect of

AH13205 is considered as a combined effect of its corresponding stereoisomers. Also, a single stereoisomer would have been expected to be similarly useful as the racemic mixture. In absent of some difference in kind between the various isomers, the skilled artisan would have seen each isomer as prima facie obvious (see *In re Adamson and Duffin*, 125 USPQ 233 (CCPA 1960)). The skilled artisan would have expected stereoisomers to be separable and such separated isomers to exhibit physiological effects similar to those of their racemic mixture at varying levels. Possessing a compound known to contain chiral centers places all the resultant isomers in the skilled artisan's possession. Thus, use of one or the other stereoisomer of AH13205 for treatment of inflammatory lung disease such asthma would have been prima facie obvious to the skilled artisan at the time the invention was made in the absence of some difference in kind between the various isomers and superior activity of an individual stereoisomer over the racemic mixture.

Conclusion

No claims are allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to BONG-SOOK BAEK whose telephone number is 571-270-5863. The examiner can normally be reached 8:00-5:00 Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ardin Marschel can be reached on 571-272-0718. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Brian-Yong S Kwon/
Primary Examiner, Art Unit 1614
Bbs

BONG-SOOK BAEK
Examiner, Art Unit 1614